

## **REMARKS**

Support for the language introduced in Claims 2 and 8 is found in page 3, line 1 and lines 13-14.

For the record, the pending claims are 2-5 and 8; in the "Office Action Summary" these have incorrectly been identified as "2-8".

Claims 2, 3, 4 and 8 are directed to a process for producing phosgene having low concentration of carbon tetrachloride (herein  $\text{CCl}_4$ ). The process entails reacting carbon monoxide with chlorine in the presence of elemental carbon. Critical to the inventive process are the recited process parameters of temperature and pressure that characterize the gas stream emerging from the reactor. The invention resides in the findings that the effectiveness of the process in producing phosgene having low concentration of  $\text{CCl}_4$  depends on these parameters. As presently amended, the process yields phosgene wherein the concentration of carbon tetrachloride is lower than 150 ppm. Claim 5 is directed to an embodiment where the carbon monoxide is characterized by its methane content.

Claims 2-4 and 8 stand rejected under 35 U.S.C. 102(b) as being anticipated by Obrecht (U.S. Patent 4,231,959).

The standard for anticipation is one of strict identity. To anticipate a claim for a patent, a single prior art document must contain all the essential elements of the claimed invention. In *Re Donohue* 226 USPQ 619.

In rejecting the claims as anticipated, the Examiner asserts that 0.02 mole percent of  $\text{CCl}_4$  is an amount "that is significantly less than 150 ppm". This assertion is clearly erroneous and the rejection based thereon is clearly untenable.

Obrecht disclosed (column 7 lines 18 et seq.) "99.6 pound mols (44.9 kg. mols) per hour and comprises about 99.96 mol percent phosgene phosgene, 0.02 mol percent carbon tetrachloride and trace quantities of hydrogen chloride and chlorine".

Therefore, 1 million mols of phosgene contain 200 mol of carbon tetrachloride, which means 200 mol-ppm. The molecular weight of phosgene is 99 g/mol and that of carbon tetrachloride is 154 g/mol. Converting the mol-ppm to weight ppm,

200 mol-ppm correspond to

$$200 \times 154/99 = 311 \text{ weight-ppm.}$$

The rejection alleging anticipation is clearly erroneous and its retraction is respectfully urged.

Claims 2-4 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cicha et al (WO 97/30932). This ground of rejection first set forth in the Office Action of November 14, 2003, was addressed in the Brief that was filed in the course of the instant prosecution.

In the absence of the Examiner's reaction thereto, the Applicants request that this rejection be withdrawn in light of the argument set forth in the Brief.

Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Cicha et al and further in view of Obrecht. Identical in all respects to the rejection set forth in the Office Action of November 14, 2003, this rejection too was addressed in the Appeal Brief of April 16, 2004.

In the absence of the Examiner's reaction thereto, the Applicants request that this rejection be withdrawn in light of the argument set forth in the Brief.

Reconsideration of the Application and withdrawal of the rejections are requested.

In addition to the art submitted in the Information Disclosure Statement on September 30, 2004, Applicants wish to bring to the attention of the Office the following documents that were cited in the course of the corresponding European patent prosecution.

The following documents (noted with their corresponding English language equivalents) were cited.

PCT/US96/17526 (= WO 97/30932)

PCT/US97/22903 (= WO 98/28227)

JP 9-059012 (English language translation thereof is enclosed)

U.S. Patent 4,231,959

The above documents and Form PTO-1449 listing the same are enclosed for the Examiner's convenience in making these "of record" in the present prosecution.

Previously submitted were FR 2109186; DE OS 1936940; and FR 2 297 190 for which documents no English language translations are available to Applicants. The following are Applicants comments respecting these documents:


FR 2297190 disclosed a process for producing phosgene wherein  $\text{Cl}_2$  reacts with CO in the presence of at least two catalyst beds including activated charcoal. This two catalyst beds are introduced into two reactors. Accordingly, the entire amount of CO is feed to the first catalyst bed and the  $\text{Cl}_2$  is fed to the two beds in measured portions. The reaction temperature inside the reactor is 50 to 400°C and the pressure is 1 to 10 bar abs. Neither the pressure nor the temperature with which the phosgene leaves the reactor is disclosed nor is low concentration of  $\text{CCl}_4$  disclosed.

DE 1936940 that disclosed  $\text{CH}_4$  reaction with  $\text{Cl}_2$  for making chlorinated products like  $\text{CCl}_4$  is clearly immaterial to the patentability of the present invention.

FR2109186 disclosed a process for producing phosgene from CO,  $\text{Cl}_2$  and activated charcoal. The process takes place using two reactors. The first reactor operates at 350 to 200°C and the inside temperature of the second reactor is 80 to 100°C. The second reactor, a "finishing reactor", is apparently required because the conversion of CO and  $\text{Cl}_2$  is not completed in the first reactor. In an example, phosgene containing no  $\text{CCL}_4$  is said to leave the first reactor at 200°C under pressure of 3.2 atm (320 kPa abs); 98% of the reactants are said to be converted.

Believing the above represents a complete response to the Office Action and that the application is in condition for allowance, Applicants request the earliest issuance of an indication to this effect.

Respectfully submitted,

By   
Aron Preis  
Attorney for Applicants  
Reg. No. 29,426

Bayer MaterialScience LLC  
100 Bayer Road  
Pittsburgh, Pennsylvania 15205-9741  
(412) 777-3814  
FACSIMILE PHONE NUMBER:  
(412) 777-3902  
s:\shared\jmf\AP6284.amd